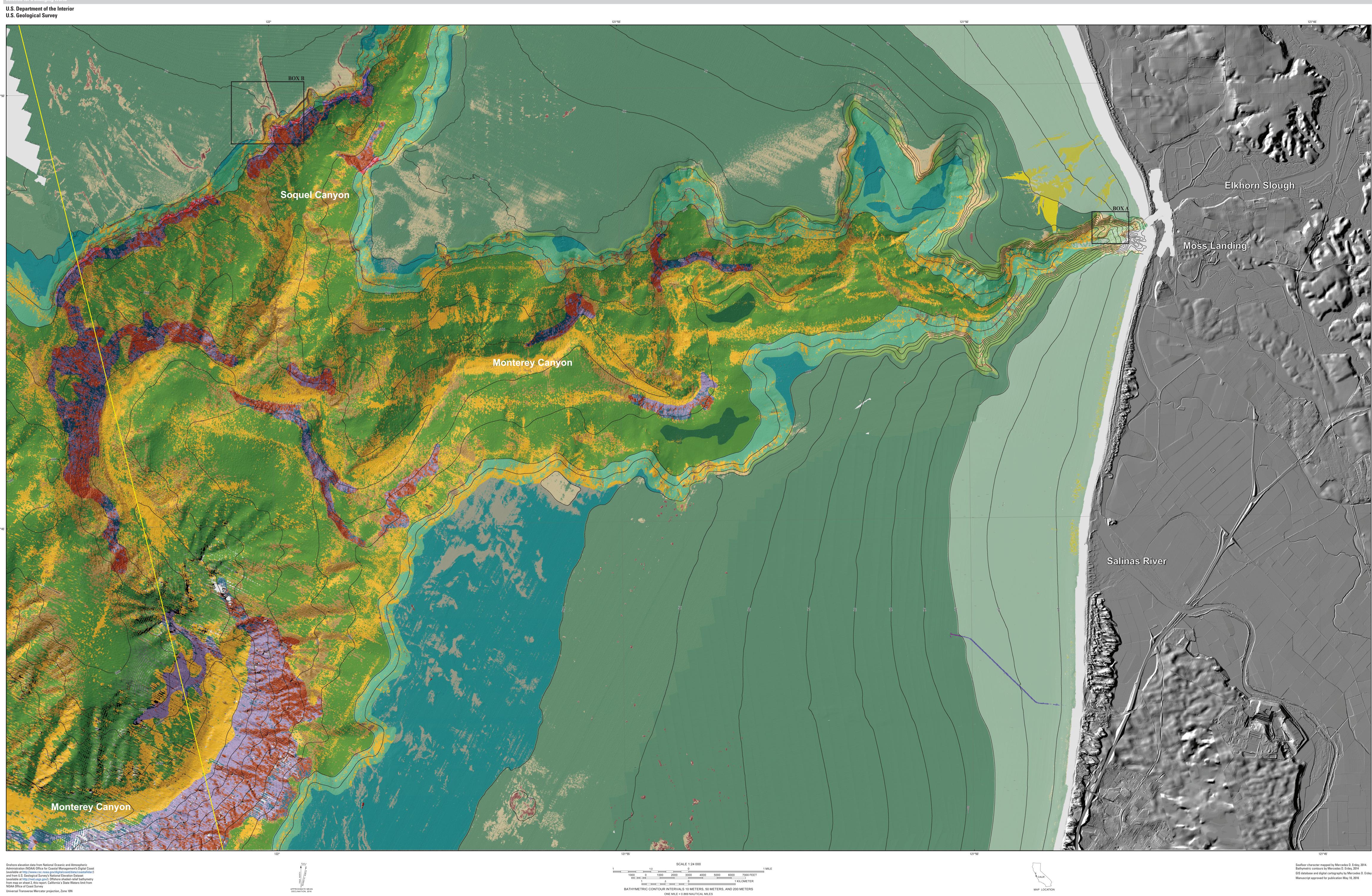
NOT INTENDED FOR NAVIGATIONAL USE

Pamphlet accompanies map



DESCRIPTION OF MAP UNITS

DEPTH ZONE 2—INTERTIDAL TO 30 METERS WATER DEPTH SLOPE CLASS 1—0 TO 5 DEGREES

Fine- to medium-grained smooth sediment—Low backscatter, low rugosity; typically mud to medium-grained sand; often rippled and (or) burrowed Mixed smooth sediment and rock—Moderate to very high backscatter, low rugosity; typically coarse-grained sand, gravel, cobbles, and bedrock Rock and boulder, rugose—High backscatter, high rugosity; typically boulders and rugose

Medium- to coarse-grained sediment—Very high backscatter, low rugosity; typically mediumto coarse-grained sediment, with varying amounts of shell hash; in scour depressions Hard anthropogenic material—High backscatter, high rugosity; related to development by

SLOPE CLASS 2—5 TO 30 DEGREES Fine- to medium-grained smooth sediment—Low backscatter, low rugosity; typically mud to medium-grained sand; often rippled and (or) burrowed Mixed smooth sediment and rock—Moderate to very high backscatter, low rugosity; typically

DEPTH ZONE 3—30 METERS TO 100 METERS WATER DEPTH SLOPE CLASS 1—0 TO 5 DEGREES

Fine- to medium-grained smooth sediment—Low backscatter, low rugosity; typically mud to

medium-grained sand; often rippled and (or) burrowed Mixed smooth sediment and rock—Moderate to very high backscatter, low rugosity; typically coarse-grained sand, gravel, cobbles, and bedrock Rock and boulder, rugose—High backscatter, high rugosity; typically boulders and rugose Medium- to coarse-grained sediment—Very high backscatter, low rugosity; typically mediumto coarse-grained sediment, with varying amounts of shell hash; in scour depressions Hard anthropogenic material—High backscatter, high rugosity; related to development by

SLOPE CLASS 2—5 TO 30 DEGREES

coarse-grained sand, gravel, cobbles, and bedrock

Fine- to medium-grained smooth sediment—Low backscatter, low rugosity; typically mud to medium-grained sand; often rippled and (or) burrowed Mixed smooth sediment and rock—Moderate to very high backscatter, low rugosity; typically coarse-grained sand, gravel, cobbles and bedrock Rock and boulder, rugose—High backscatter, high rugosity; typically boulders and rugose Medium- to coarse-grained sediment—Very high backscatter, low rugosity; typically medium-

DEPTH ZONE 4—100 METERS TO 200 METERS WATER DEPTH

to coarse-grained sediment, with varying amounts of shell hash; in scour depressions

SLOPE CLASS 1—0 TO 5 DEGREES Fine- to medium-grained smooth sediment—Low backscatter, low rugosity; typically mud to medium-grained sand; often rippled and (or) burrowed Mixed smooth sediment and rock—Moderate to very high backscatter, low rugosity; typically coarse-grained sand, gravel, cobbles, and bedrock Rock and boulder, rugose—High backscatter, high rugosity; typically boulders and rugose

Fine- to medium-grained smooth sediment—Low backscatter, low rugosity; typically mud to medium-grained sand; often rippled and (or) burrowed Mixed smooth sediment and rock—Moderate to very high backscatter, low rugosity; typically

coarse-grained sand, gravel, cobbles, and bedrock Rock and boulder, rugose—High backscatter, high rugosity; typically boulders and rugose Medium- to coarse-grained sediment—Very high backscatter, low rugosity; typically mediumto coarse-grained sediment, with varying amounts of shell hash; in scour depressions SLOPE CLASS 3—30 TO 60 DEGREES

Fine- to medium-grained smooth sediment—Low backscatter, low rugosity; typically mud to

medium-grained sand; often rippled and (or) burrowed Mixed smooth sediment and rock—Moderate to very high backscatter, low rugosity; typically coarse-grained sand, gravel, cobbles, and bedrock Rock and boulder, rugose—High backscatter, high rugosity; typically boulders and rugose

DEPTH ZONE 5—100 METERS TO 200 METERS WATER DEPTH

SLOPE CLASS 1—0 TO 5 DEGREES Fine- to medium-grained smooth sediment—Low backscatter, low rugosity; typically mud to medium-grained sand; often rippled and (or) burrowed Mixed smooth sediment and rock—Moderate to very high backscatter, low rugosity; typically coarse-grained sand, gravel, cobbles, and bedrock

SLOPE CLASS 2—5 TO 30 DEGREES Fine- to medium-grained smooth sediment—Low backscatter, low rugosity; typically mud to medium-grained sand; often rippled and (or) burrowed

Mixed smooth sediment and rock—Moderate to very high backscatter, low rugosity; typically coarse-grained sand, gravel, cobbles, and bedrock Rock and boulder, rugose—High backscatter, high rugosity; typically boulders and rugose SLOPE CLASS 3—30 TO 60 DEGREES

Fine- to medium-grained smooth sediment—Low backscatter, low rugosity; typically mud to medium-grained sand; often rippled and (or) burrowed Mixed smooth sediment and rock—Moderate to very high backscatter, low rugosity; typically coarse-grained sand, gravel, cobbles, and bedrock Rock and boulder, rugose—High backscatter, high rugosity; typically boulders and rugose

EXPLANATION OF MAP SYMBOLS Area of "no data"—Areas near shoreline not mapped owing to insufficient high-resolution seafloor mapping data; areas beyond limit of California's State Waters were not mapped as

Bathymetric contour (in meters)—Derived from modified 2- and 5-m-resolution bathymetry grids. Contour intervals: 1–100 m water depth, 10 m; 100–200 m water depth, 50 m; >200 m water depth, 200 m

part of California Seafloor Mapping Program

Limit of California's State Waters

Protection Act depth zones: Depth Zone 2 (intertidal to 30 m), Depth Zone 3 (30 to 100 m), Depth Zone 4

(100 to 200 m), and Depth Zone 5 (greater than 200 m). In addition, the following slope classes are represented on this map (Coastal and Marine Ecological Classification Standard slope zones are shown in

This seafloor-character map of the Monterey Canyon and Vicinity map area in central California was produced using video-supervised, maximum-likelihood classification of the bathymetry and backscatter (intensity of return) signals from sonar systems (a summary of the video data collected for the purpose of supervising the classification is shown on sheet 6). Rugosity (a GIS-derived characterization of roughness) and backscatter intensity were used as variants in the classification. The interpreted classifications were then draped over shaded-relief bathymetry (see sheet 2). The substrate classes mapped in this area have been divided into the following California Marine Life

parentheses): Slope Class 1, 0° to 5° (flat); Slope Class 2, 5° to 30° (sloping); and Slope Class 3, 30° to 60° (steeply sloping). Depth Zone 1 (intertidal), and Slope Classes 4 and 5, greater than 60° (vertical to overhang), are not present in this map area. Fine- to medium-grained smooth sediment (sand and mud) makes up 77.1 percent (312.2 km²) of the map area: 8.9 percent (36.0 km²) is in Depth Zone 2, 37.2 percent (150.6 km²) is in Depth Zone 3, 11.1 percent (44.9 km²) is in Depth Zone 4, and 19.9 percent (80.7 km²) is in Depth Zone 5. Mixed smooth sediment (sand and gravel) and rock (that is, sediment typically forming a veneer over bedrock, or rock outcrops having little to no relief) make up 16.0 percent (64.8 km²) of the map area: 0.1 percent (0.3 km²) is in Depth Zone 2, 2.5 percent (10.1 km²) is in Depth Zone 3, 2.5 percent (10.3 km²) is in Depth Zone 4, and 10.9 percent (44.1 km²) is in Depth Zone 5. Rock and boulder, rugose (rock and boulder outcrops having high surficial complexity) makes up 6.5 percent (26.4 km²) of the map area: less than 0.1 percent (<0.1 km²) is in Depth Zone 2, 0.1 percent (0.6 km²) is in Depth Zone 3, 0.4 percent (1.6 km²) is in Depth Zone 4, and 6.0 percent (24.2 km²) is in Depth Zone 5. Medium- to coarse-grained sediment (in scour depressions consisting of material that is coarser than the surrounding seafloor) makes up 0.3 percent (1.3 km²) of the map area: 0.2 percent (0.9 km²) is in Depth Zone 2, 0.1 percent (0.3 km²) is in Depth Zone 3, and less than

0.1 percent (0.1 km²) is in Depth Zone 4. Anthropogenic material (a pipe) makes up less than 0.1 percent (<0.1 km²) of the map area: less than 0.1 percent (<0.1 km²) is present in both Depth Zone 2 and 3 (table 1).

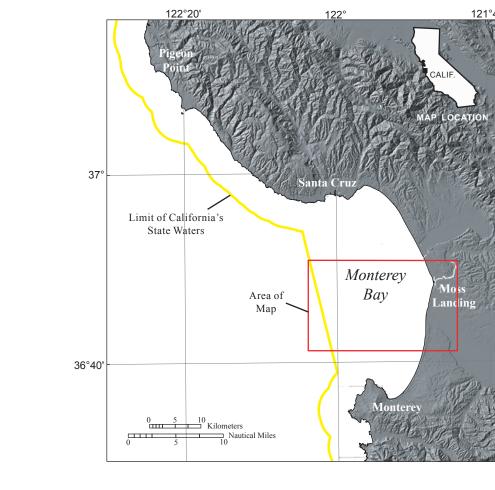






Table 1. Coverage of classified seafloor, in square kilometers (sq km) and percent of total area, broken into California Marine Life Protection Act Depth Zones 2, 3, 4, and 5.

	Total		Depth Zone 2 (water depth 0-30 m)		Depth Zone 3 (water depth 30–100 m)		Depth Zone 4 (water depth 100–200 m)		Depth Zone 5 (water depth >200 m)	
	percent	sq km	percent of total	sq km	percent of total	sq km	percent of total	sq km	percent of total	sq km
- to medium- ned smooth nent	77.1	312.2	8.9	36.0	37.2	150.6	11.1	44.9	19.9	80.7
ed smooth nent and rock	16.0	64.8	0.1	0.3	2.5	10.1	2.5	10.3	10.9	44.1
and der, rugose	6.5	26.4	<0.1	<0.1	0.1	0.6	0.4	1.6	6.0	24.2
ium- to coarse- ned sediment	0.3	1.3	0.2	0.9	0.1	0.3	<0.1	0.1	0.0	0.0
ged, hard ropogenic (pipe)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.0	0.0	0.0	0.0

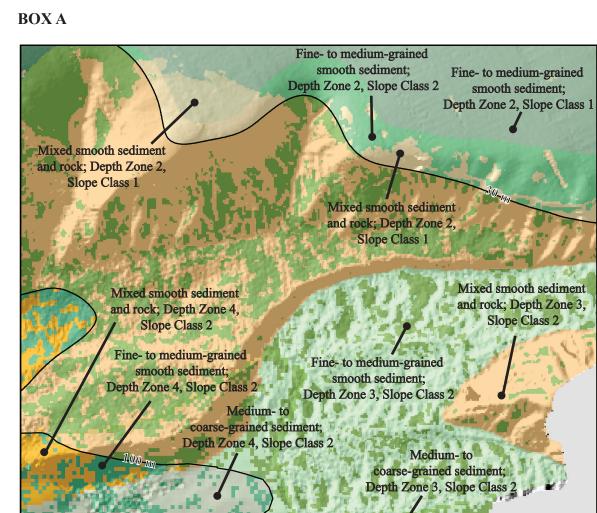


Figure 1. Detailed view of substrate classes mapped offshore of Moss Landing, at head of Monterey Canyon (see Box A, on map, for location): Depth Zones 2, 3, and 4 (intertidal to 200 m), and Slope Classes 1 and 2 (0°–30°). Fineto medium-grained smooth sediment is shown in shades of medium green and dark green; mixed smooth sediment indicate unconsolidated (loosely packed) sediment. Interpreted substrate classes from figure 1 included for and rock is shown in shades of tan and orange; and medium- to coarse-grained sediment is shown in is shades of comparison. Bathymetric contours (30 and 100 m) shown for depth reference. light green and dark gray. Bathymetric contours (30 and 100 m) shown for depth reference.

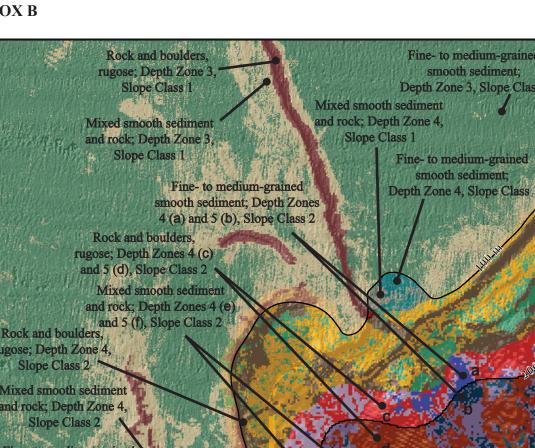


Figure 4. Detailed view of substrate classes mapped on northwest rim of Soquel Canyon, along continental shelf—submarine canyon interface (see Box B, on map, for location): Depth Zones 3, 4, and 5 (30 m to greater than 200 m), and Slope Classes 1 and 2 (0°–30°). Fine- to medium-grained smooth sediment is shown in shades of green and blue; mixed smooth sediment and rock is shown in shades of tan, orange, and purple; and rock is shown in shades of red and brown. Bathymetric contours (100 and 200 m) shown for depth reference.

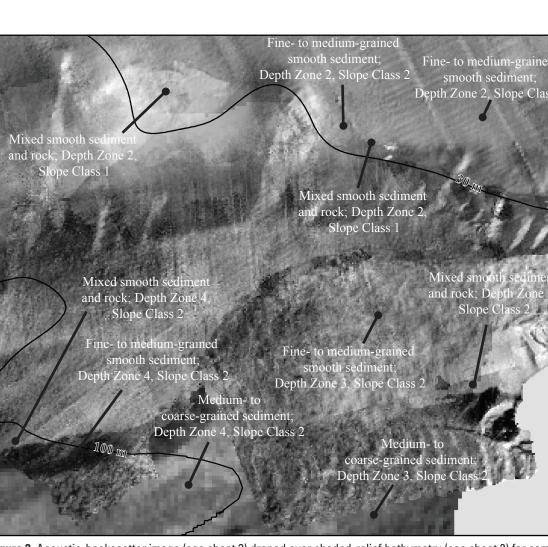


Figure 2. Acoustic-backscatter image (see sheet 3) draped over shaded-relief bathymetry (see sheet 2) for same area as figure 1 (Box A on map). Brighter areas indicate coarse-grained, rough, or hard seafloor; darker areas

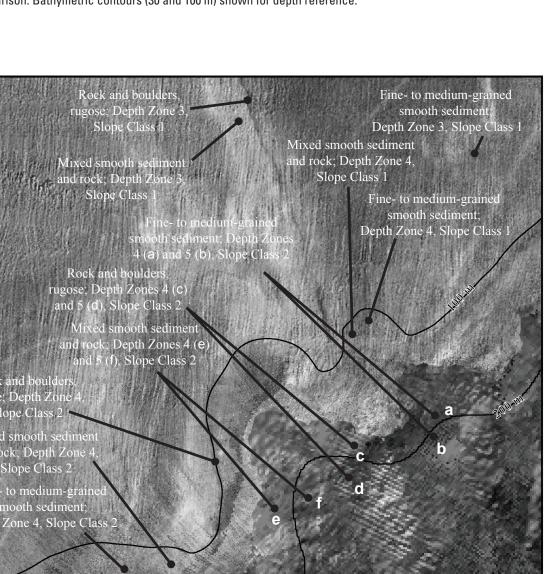
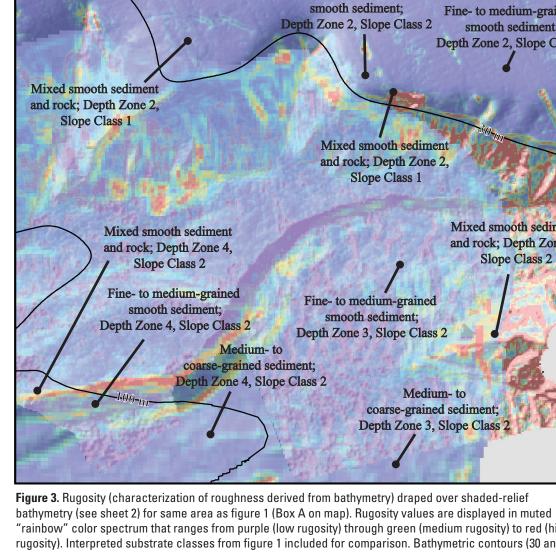


Figure 5. Acoustic-backscatter image (see sheet 3) draped over shaded-relief bathymetry (see sheet 2) for same area as figure 4 (Box B on map). Brighter areas indicate coarse-grained, rough, or hard seafloor; darker areas indicate unconsolidated (loosely packed) sediment. Interpreted substrate classes from figure 4 included for comparison. Bathymetric contours (100 and 200 m) shown for depth reference.



bathymetry (see sheet 2) for same area as figure 1 (Box A on map). Rugosity values are displayed in muted "rainbow" color spectrum that ranges from purple (low rugosity) through green (medium rugosity) to red (high rugosity). Interpreted substrate classes from figure 1 included for comparison. Bathymetric contours (30 and 100 m) shown for depth reference.

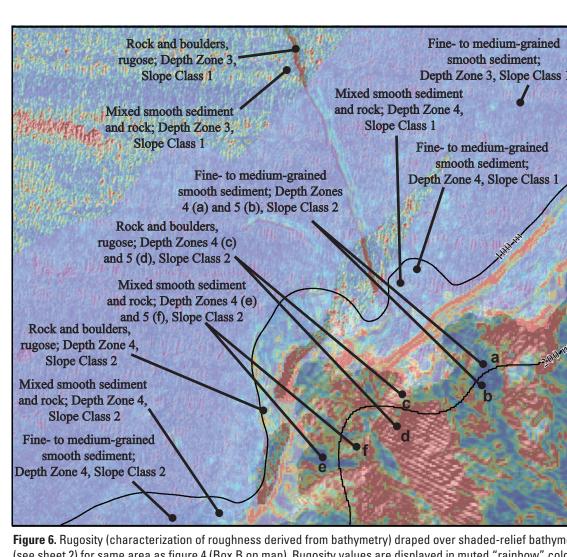


Figure 6. Rugosity (characterization of roughness derived from bathymetry) draped over shaded-relief bathymetry (see sheet 2) for same area as figure 4 (Box B on map). Rugosity values are displayed in muted "rainbow" color spectrum that ranges from purple (low rugosity) through green (medium rugosity) to red (high rugosity). Interpreted substrate classes from figure 4 included for comparison. Bathymetric contours (100 and 200 m) shown